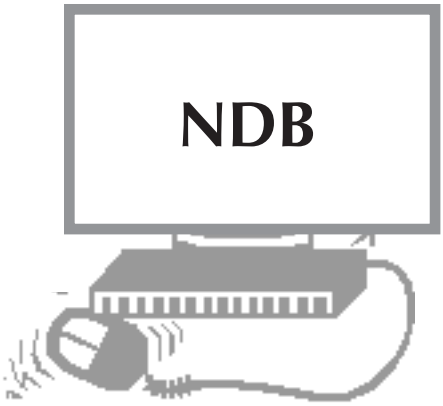
FOOD COMP ONLINE

Teachers' Guidelines



This lesson contains three sheets:

(1) this guide,
(2) a two-sided student activity sheet, and
(3) a two-sided answer key.

The activity is designed to—

- introduce students to USDA's Nutrient Database for Standard Reference—the nation's primary source of food composition data (see www.ars.usda.gov/NutrientData)
- help students learn how to maneuver in the database
- reinforce basic math skills, for example, fluid ounce to cup conversions
- familiarize students with terminology used in food composition
- review some basic facts about the nutrients in foods.

The activity is designed to become progressively more difficult by involving a wider variety of selections and requiring more advanced decisionmaking skills as it proceeds.

You may want to combine the activity with a nutrition lesson. Have your students keep a day's record of what they eat and determine how their intakes compare to recommendations. A free, user-friendly, web-based nutrition analysis tool that uses USDA's database can be accessed through http://nat.illinois.edu.

Before the Lesson…

- Familiarize yourself with the web site and try some of the activities. Note that most foods in the database have multiple entries, so be prepared for a wide variation in answers—they'll differ according to the entry selected, for example, the fresh versus frozen form of a food, or lowfat milk with nonfat milk solids versus milk that is protein-fortified.

- Discuss the need to compare like amounts, for example, one serving of a food or equal weights.

- Note that each entry in the database is assigned an NDB (nutrient database) number. Foods can be searched using this number. You may want to have students record the NDB number for each answer. The answer key provides both numbers and item descriptions to assist you in facilitating discussion. Also note that, for your convenience, the key provides several answers that MIGHT be used in response to questions involving favorite foods.

Agricultural Research Service
Revised March 2010

FOOD COMP ONLINE

Student Activity Sheet

Ever thought about how much fat or how much calcium is in the foods you eat? How can you find out? Check out **USDA's Nutrient Database for Standard Reference** on the World Wide Web. Containing over **7,500 foods** and more than **140 components**, it is the nation's primary source of food composition data.

Before using the database, access the Nutrient Data Laboratory's home page:

www.ars.usda.gov/NutrientData

Take a quick look to see what information is offered and how it's organized.

When you're ready for action, click on SEARCH. Follow instructions for keyword entry.

Getting to Know You...

To acquaint yourself with the nutrient database (NDB), look up some of your favorite foods to answer the following questions:

(1) Energy (calories) is reported in both _____ and _____. Search the home page to find the difference between these units.

(2) Another name for fat is _____.

(3) Another name for vitamin C is _____.

(4) What minerals are listed in the database?

(5) The three major classes of fatty acids are _____, _____, and _____.

Getting Around...

(Round all values to the nearest whole unit.)

(1) Give the portion sizes in which cooked, frozen broccoli spears are reported.

(2) How much sodium is in a teaspoon of salt; in a large double cheeseburger with everything?

(3) What keywords can you use to find french fries at a fast food restaurant?

(4) Provide product descriptions and dietary fiber values for NDB No. 09200 (1 large) and NDB No. 16005 (1 cup).

(5) Which has more calcium—a cup of 1% lowfat milk or a serving (1/2 cup) 1% lowfat cottage cheese? Record values and item descriptions.

Getting Down to Business...

(Round all values to the nearest whole unit.)

(1) Deep yellow and dark green leafy vegetables are among the best sources of beta carotene, a "precursor" of vitamin A. List three. Compare values to NDB No. 11056 and NDB No. 11814.

(2) Compare the fat in several popular snack foods. List them from most to least fat.

(3) Find three fruits low in fat.

(4) Compare the vitamin C content in five different beverages. Use 1-cup portions.

(5) Which of the following is highest in cholesterol—2 tbsp chunky peanut butter, 1 cup orange juice, a batter-fried chicken drumstick, 3 cups rice, 1/2 cup salsa?

Going the Extra Mile...

(1) Write down the items you had for breakfast this morning. Don't forget extras like the butter and jam on your toast! Calculate the calories, fat, saturated fatty acids, cholesterol, ascorbic acid, calcium, iron, and fiber for your meal.

(2) Study the Nutrient Data Laboratory's web site. What types of information might be helpful in your other classes?

Agricultural Research Service
Revised March 2010

FOOD COMP ONLINE

Answer Key

Getting to Know You…

(1) Energy is reported in kcal (kilocalories or Calories) and kj (kilojoules). In the United States, the energy in foods is expressed in kilocalories. Internationally, most countries use kilojoules. This topic is discussed under "Frequently Asked Questions" near the end.

(2) Total lipid

(3) Ascorbic acid

(4) Calcium, iron, magnesium, phosphorus, potassium, sodium, zinc, copper, manganese, and selenium

(5) Saturated, monounsaturated, and polyunsaturated

Getting Around…

(1) 100 grams, 10-oz package, and 1/2 cup (NDB No. 11095—Broccoli, frozen, spears, cooked, boiled, drained, without salt)

(2) 2,325 milligrams (NDB No. 02047—Salt, table) and 1,438 milligrams (NDB No. 21399—Fast foods, cheeseburger; large, double patty; with condiments, vegetables, and mayonnaise)

(3) They can be found under "fast foods," "french fries," "french fried," or "fries." See NDB No. 21138 (Fast foods, potato, french fried in vegetable oil). Compare results for entering "potatoes, french fried" and discuss what this means in terms of choosing key words.

(4) 4 grams for NDB No. 09200 (oranges, raw, all commercial varieties) and 14 grams for NDB No. 16005 (Beans, baked, home-prepared). Dietary fiber sources include fruits, vegetables, dry beans and peas, whole-grain breads and cereals, nuts, and seeds.

(5) Many think cottage cheese is a good source of calcium. In fact, it's quite low compared to milk. Depending on type, 1% milk has about 300-350 mg calcium/cup. One-half cup of cottage cheese is equivalent to ¼ cup milk.

NDB No. 01082—Milk, lowfat, fluid, 1% milkfat with added vitamin A and vitamin D—305 mg
NDB No. 01083—Milk, lowfat, fluid, 1% milkfat, with added nonfat milk solids, vitamin A and vitamin D—314 mg
NDB No. 01084—Milk, lowfat, fluid, 1% milkfat, protein fortified, with added vitamin A and vitamin D—349 mg
NDB No. 01016—Cheese, cottage, lowfat, 1% milkfat—69 mg /1/2 cup

Getting Down to Business…

(1) Here are a few possibilities:

Carrots (NDB No. 11124—Carrots, raw)—10,108 mcg/cup strips
Sweetpotatoes (NDB No. 11512—Sweetpotato, canned, vacuum pack)—9,580 mcg/cup pieces
Spinach (NDB No. 11458—Spinach, cooked, boiled, drained, without salt)—11,318 mcg/cup
Kale (NDB No. 11234—Kale, cooked, boiled, drained, without salt)—10,625mcg/cup, chopped
Collards (NDB No. 11162—Collards, cooked, boiled, drained, without salt)—9,147 mcg/cup, chopped
Turnip greens (NDB No. 11569—Turnip greens, cooked, boiled, drained, without salt)—6,588 mcg/cup, chopped
Canned green beans (NDB No. 11056—Beans, snap, green, canned, regular pack, drained solids)—187 mcg/cup
Corn (NDB No. 11168—Corn, sweet, yellow, cooked, boiled, drained, without salt)—98 mcg/cup

(2) Here are a few favorites:

Taco (NDB No. 21082—Fast foods, taco, small)—21 grams
Rich ice cream (NDB No. 19089—Ice creams, vanilla, rich)—17 grams/1/2 cup
Jelly doughnut (NDB No. 18256—Doughnuts, yeast leavened, with jelly filling)—16 grams/doughnut
Peanuts (NDB No. 16090—Peanuts, all types, dry-roasted, with salt)—14 grams/ounce
Snickers bar (NDB No. 19155—Candies, MARS SNACKFOOD US, Snickers Bar)—14 grams/medium bar
Chili dog (NDB No. 21119—Fast foods, hot dog, with chili)—13 grams/sandwich
Pepperoni pizza (NDB No. 21303—(Fast food, Pizza Chain, 14″ Pizza, pepperoni topping, thick crust)—13 grams/slice
Cheese pizza (NDB No. 21301— Fast food, Pizza Chain, 14" Pizza, cheese topping, thin crust)—10 grams/slice
Potato chips (NDB No. 19411—Snacks, potato chips, plain, salted)—10 grams/ounce
Popcorn (NDB No. 19035—Snacks, popcorn, oil-popped, microwave, regular flavor)—5 grams/cup
Pretzels (NDB No. 19047—Snacks, pretzels, hard, plain, salted)—1 gram/ounce

What lower fat selections did your students make? Could they make? Did they choose any fruits or veggies? Discuss.

(3) Except for the fat you might add (like whipped topping on strawberries or the crust and filling in fruit pie), MOST ALL fruits are VERY LOW in fat!

(4) All values are expressed in milligrams per cup (8 fluid ounces).

Orange juice (NDB No. 09215—Orange juice, frozen concentrate, unsweetened, diluted with 3 volumes water)—97
Cranberry juice cocktail (NDB No. 14242—Cranberry juice cocktail, bottled)—107
Milk (NDB No. 01077—Milk, whole, 3.25 % milkfat with added vitamin D)—0
Regular soda (NDB No. 14400—Carbonated beverage, cola, contains caffeine)—0
Diet soda (NDB No. 14416—Carbonated beverage, low calorie, cola or pepper type, with aspartame, contains caffeine)—0
Coffee (NDB No. 14209—Coffee, brewed from grounds, prepared with tap water)—0

(5) Trick question—Only animal foods contain cholesterol. One batter-fried drumstick (NDB No. 05067) contains 62 mg. How many knew the answer without looking up data for all the foods?

Agricultural Research Service
Revised March 2010